

WHAT IS CLAIMED IS:

1. A method for relieving pressure in a tire press, the method comprising  
5 the steps of:

providing a tire press with a bladder securement mechanism, the  
bladder securement mechanism comprising an upper clamping mechanism for  
securing at least a portion of the upper periphery of a bladder, a lower clamping  
mechanism for securing at least a portion of the lower periphery of the bladder, and a  
10 position sensor mechanism for moving at least one of the clamping mechanisms;  
positioning a green tire in a mold;  
moving at least one of the clamping mechanisms toward the tire;  
inflating the bladder such that it comes into contact with the tire;  
closing the press;  
15 curing the tire;  
separating a portion of the bladder from the tire by moving at least  
one of the clamping mechanisms;  
relieving pressure from the tire; and,  
opening the press.

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2. The method of claim 1, wherein separating a portion of the bladder  
from the tire by moving at least one of the clamping mechanisms comprises the step  
of moving the upper clamping mechanism toward the lower clamping mechanism in  
order to release pressure from the tire.

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3. The method of claim 1, wherein the bladder is separated from the tire  
adjacent to an upper mold.

4. The method of claim 1, further comprising the step of directing  
30 released pressure into the tire press.

5. The method of claim 4, wherein the tire press further comprises:  
a platen support positioned above the mold;  
a press beam extending upwardly from the platen support; and,  
5 a mold actuating ring operatively connected to the mold, the mold actuating ring and the press beam defining a first void, the method further comprising the step of:  
directing the released pressure into the first void.
- 10 6. The method of claim 1, wherein separating a portion of the bladder from the tire by moving at least one of the clamping mechanisms comprises the step of moving the lower clamping mechanism toward the upper clamping mechanism in order to release pressure from the tire.
- 15 7. The method of claim 1, wherein the bladder securement mechanism further comprises a center mechanism tube, a center mechanism rod positioned in the center mechanism tube, a piston disposed within the center mechanism tube, the piston providing reciprocating motion to the center mechanism rod through the center mechanism tube, wherein the position sensor mechanism determines the  
20 position of the upper clamping mechanism, the position sensor mechanism comprising:  
a linear sensing rod disposed in the center tube;  
a magnet positioned within the piston, the magnet being laterally spaced from the linear sensing rod; and,  
25 a signal generating unit for determining the travel amount of the piston.
8. The method of claim 7, further comprising the steps of:  
moving the magnet with the piston;  
30 determining the displacement travel amount of the piston; and,

controlling the vertical movement of the upper clamping mechanism.

9. A method for relieving pressure in a vulcanized tire while still in a tire press, the method comprising the steps of:

- 5           providing a tire press with a mold and a bladder securement mechanism, the mold having a cavity therein for a tire, the bladder securement mechanism comprising an upper clamping mechanism for securing at least a portion of the upper periphery of a bladder and a lower clamping mechanism for securing at least a portion of the lower periphery of the bladder, the tire press further comprising
- 10   a position sensor mechanism for determining the position of the bladder securement mechanism;
- positioning a green tire on the mold;
- moving at least one of the clamping mechanisms toward the tire;
- inflating the bladder, thereby forming a seal between the bladder and
- 15   the tire;
- closing the press so that the green tire is enclosed within the mold;
- curing the green tire;
- breaking the seal by moving at least one of the clamping mechanisms toward the tire;
- 20   releasing pressure from the tire; and,
- dissipating the released pressure.

10. The method of claim 9, wherein the bladder securement mechanism further comprises a center mechanism tube, a center mechanism rod positioned in the
- 25   center mechanism tube, a piston disposed within the center mechanism tube, the piston providing reciprocating motion to the center mechanism rod through the center mechanism tube, wherein the position sensor mechanism further comprises:
- a linear sensing rod disposed in the center mechanism tube;
- a magnet positioned within the piston, the magnet being laterally
- 30   spaced from the linear sensing rod; and,

a signal generating unit for determining the travel amount of the piston.

5 11. The method of claim 10, further comprising the steps of:  
moving the magnet with the piston;  
determining the travel amount of the piston relative; and,  
controlling the vertical movement of the bladder securement mechanism .

10 12. The method of claim 11, wherein breaking the seal comprises the step of moving the upper clamping mechanism downward.

15 13. The method of claim 11, wherein breaking the seal comprises the step of moving the lower clamping mechanism upward.

14. The method of claim 9, wherein the released pressure is contained within the tire press.

20 15. The method of claim 14, wherein the tire press further comprises:  
a platen support positioned above the mold;  
a press beam extending upwardly from the platen support; and,  
a mold actuating ring operatively connected to the mold, the mold actuating ring and the press beam defining a first void, the method further comprising the step of:  
25 directing the released pressure into the void.

16. A method for relieving pressure in a vulcanized tire while still in a tire press, the method comprising the steps of:  
providing a tire press with a lower mold, an upper mold, and a bladder  
30 securement mechanism , the lower mold and the upper mold defining a cavity therein

- when the upper mold contacts the lower mold, the bladder securement mechanism comprising an upper clamping mechanism for securing at least a portion of the upper periphery of a bladder, a lower clamping mechanism for securing at least a portion of the lower periphery of the bladder, a center mechanism tube, a center mechanism rod
- 5 positioned in the center mechanism tube, the center mechanism rod having a first end and a second end, a piston disposed within the center mechanism tube, the piston providing reciprocating motion to the center mechanism rod through the center mechanism tube, one end of the center mechanism rod being mechanically secured to the piston, and a position sensor mechanism for determining the position of the upper
- 10 clamping mechanism, the position sensor mechanism comprising a floating magnet positioned in the piston, a linear sensing rod disposed in the center mechanism rod for sensing the position of the magnet, and a signal generating unit for determining the travel distance of the magnet, the method comprising the steps of:
- positioning a green tire on the bottom mold;
- 15 lowering the upper clamping mechanism;
- inflating the bladder;
- contacting an inner face of the green tire with the bladder;
- closing the press so that the upper mold contacts the bottom mold, the green tire being substantially enclosed within the lower and upper molds;
- 20 curing the green tire;
- moving the upper clamping mechanism downward to separate a portion of the bladder from the tire;
- releasing pressure from the tire, wherein the released pressure is contained inside the tire press; and,
- 25 opening the press.